APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,277	08/05/2003	David Alan Burton	SJO920020111US1	7126

			EXAMINER
45216 7590 10/23/2006			DARE, RYAN A

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ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/634,277	BURTON, DAVID ALAN
	Examiner	Art Unit	
	Ryan Dare	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6, 8-14, 16, 18-23, 25, 26 and 28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 8-14, 16, 18-23, 25-26 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20061016

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. The amendments to the claims made on 08/04/06 overcome the rejections under 35 U.S.C. 101.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berkowitz et al., US Patent 6,498,038, in view of Kodama et al., US PG Pub, 2004/0254964, further in view of Lubbers et al., US PGPub 2003/008241.

5. With respect to claim 1, Berkowitz et al. teach a computer program product comprising a computer useable medium having a computer readable program, wherein the computer readable program when executed on a computer causes the computer to:

add snapshot criteria to a snapshot set, the snapshot criteria comprising a source

volume indicator, a target volume indicator, a partial volume indicator, and a source

extents indicator data, in fig. 4, step 407 (AddComponents), col. 9, lines 58-61, and col.

8, lines 22-38, where it is disclosed that the backup components file contains the

components that are to be backed up which includes where to find the data (source

volume and extents); and

execute a plurality of fast replications operations as specified by the snapshot

set, in fig. 4, step 411 (DoSnapshotSet) and col. 10, lines 6-18.

Berkowitz fails to teach an auto-select indicator. Kodama et al. teaches a

replication system where the target volume can be selected either automatically or

chosen by a user, thereby teaching an auto-select indicator, in par. 83.

Berkowitz and Kodama fail to teach a redundancy level indicator, the redundancy

level indicator configured to select a redundancy in the range of no redundancy to a

RAID level 50 redundancy. Lubbers teaches this in pars. 62 and 71-73.

6.   It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the data replication system of Berkowitz et al. with the

data replication system of Kodama et al. in order to automatically create virtual volumes

in response to events being monitored in the data storage system, as taught by Kodama

et al. in par. 83. Furthermore, it would have been obvious to one of ordinary skill in the

art at the time the invention as made to modify the data replication system of Berkowitz

et al. and Kodama et al. with the data replication system of Lubbers et al. in order to

select a RAID level that allows the physical disk resources to be configured most efficiently, as taught by Lubbers in par. 71-73.

7.   Claims 2-6, 8-14, 16, 18-23, 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkowitz et al, Kodama et al. and Lubbers et al. as applied to claim 1 above, further in view of Armangau et al., US 6,934,822.

8.   With respect to claim 2, Berkowitz et al., Lubbers et al. and Kodama et al. teach all other limitations of the parent claim, but fail to teach a background copy indicator field. Armangau et al. teach a background copy indicator in col. 16, lines 19-44.

9.   It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the data replication system of Berkowitz et al., Lubbers et al. and Kodama et al. by performing the replication process in the background as taught by Armangau et al. in order to make efficient data replication, as taught by Armangau et al. in col. 15, lines 54-56.

10.   With respect to claim 3, Berkowitz et al. teach the computer program product of claim 1, wherein the computer readable program is further configured to cause the computer to:

create a snapshot set, in fig. 4, step 407 (StartSnapshotSet) and col. 9, lines 53-55.

delete a specified snapshot set, in fig. 4, step 431 and col. 10, lines 10-12.

11.   With respect to claim 4, Berkowitz et al. teach the computer program product wherein the computer readable program is further configured to cause the computer to:

delete specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

and

terminate the plurality of fast replications operations specified by the snapshot

set, in col. 10, lines 22-23.

12.   With respect to claim 5, Berkowitz et al. teach the computer program product of

claim 1, wherein the computer readable program is further configured to cause the

computer to provide information regarding a specified snapshot set, in fig. 4, step 425

(GetDeviceObject) and in col. 10, lines 32-40.

13.   With respect to claims 6 and 8-12, Applicant claims an apparatus that

corresponds to the computer readable storage medium of claims 1-5 and is therefore

rejected using similar logic.

14.   With respect to claim 13, Applicant claims an apparatus that contains the means

for the apparatus of claim 6 and 7 and is therefore rejected using similar logic.

15.   With respect to claim 14, Berkowitz et al. teach the apparatus of claim 13, further

comprising:

means for managing a list of controllers associated with the snapshot set, in fig.

2, Providers 215, and described in col. 4, lines 11-52;

means for creating the snapshot set, in fig. 4, step 407 (StartSnapshotSet) and

col. 9, lines 53-55;

means for deleting a specified snapshot set, in fig. 4, step 431 and col. 10, lines

10-12;

means for removing specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

means for terminating the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23; and

means for providing information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40.

16.   With respect to claim 16, Applicant claims the method that corresponds to the computer readable storage medium of claims 1 and 2, and is therefore rejected using similar logic.

17.   With respect to claim 18, Berkowitz et al. teach the method of claim 16, further comprising conducting an operation selected from the group consisting of:

creating the snapshot set, in fig. 4, step 407 (StartSnapshotSet) and col. 9, lines 53-55;

deleting a specified snapshot set means for deleting a specified snapshot set, in fig. 4, step 431 and col. 10, lines 10-12;

providing information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40;

deleting specified snapshot criteria from the snapshot set, in fig. 4, step 431 and col. 10, lines 10-12; and

terminating the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23.

18.   With respect to claim 19, Berkowitz et al. teach the method of claim 18, wherein adding snapshot criteria to a snapshot set is conducted using an API, in col. 4, lines 2-5.

19.   With respect to claim 20, Kodama et al. teach the method of claim 16, wherein adding snapshot criteria to a snapshot set and initiating a plurality of fast replication operations as specified by the snapshot set are conducted across multiple volumes and multiple controllers, in par. 89.

20.   With respect to claim 21, Kodama et al. teach the method of claim 16, further comprising managing a list of controllers associated with the snapshot set, in par. 67.

21.   With respect to claim 22, Berkowitz et al. teach the method of claim 16, further comprising managing a list of controllers associated with the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52.

22.   With respect to claim 23, Berkowitz et al. teach a system for managing and conducting fast replication operations, the system comprising:

a storage volume configured to store data, in fig. 2, backup media 230.

at least one storage controller configured to manage the storage volumes, in fig. 2, Providers 215, and described in col. 4, lines 11-52.

at least one storage controller further configured to add snapshot criteria to a snapshot set and execute a plurality of fast replications operations as specified by the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52; and

the at least one storage controller further configured to add snapshot criteria to add snapshot criteria to a snapshot set and execute a plurality of fast replications operations as specified by the snapshot set, in fig. 4, step 411 (DoSnapshotSet) and

col. 10, lines 6-18., the snapshot criteria comprising a source volume indicator, a target

volume indicator, a partial volume indicator, and a source extents indicator data, in fig.

4, step 407 (AddComponents), col. 9, lines 58-61, and col. 8, lines 22-38, where it is

disclosed that the backup components file contains the components that are to be

backed up which includes where to find the data (source volume and extents); and

Berkowitz et al. fail to teach that the storage device can be a plurality of storage

volumes. Kodama et al. teach that the backup storage device can be a plurality of

storage volumes in par. 89

Berkowitz and Kodama fail to teach a redundancy level indicator, the redundancy

level indicator configured to select a redundancy in the range of no redundancy to a

RAID level 50 redundancy. Lubbers teaches this in pars. 62 and 71-73.

Berkowitz et al., Lubbers et al. and Kodama et al. fail to teach a background copy

indicator field. Armangau et al. teach a background copy indicator in col. 16, lines 19-

44.

23.   It would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the data replication system of Berkowitz et al. with the

data replication system of Kodama et al. in order to automatically create virtual volumes

in response to events being monitored in the data storage system, as taught by Kodama

et al. in par. 83. Furthermore, it would have been obvious to one of ordinary skill in the

art at the time the invention as made to modify the data replication system of Berkowitz

et al. and Kodama et al. with the data replication system of Lubbers et al. in order to

select a RAID level that allows the physical disk resources to be configured most

efficiently, as taught by Lubbers in par. 71-73. Further, it would have been obvious to

one of ordinary skill in the art at the time the invention was made, to modify the data

replication system of Berkowitz et al., Lubbers et al. and Kodama et al. by performing

the replication process in the background as taught by Armangau et al. in order to make

efficient data replication, as taught by Armangau et al. in col. 15, lines 54-56.

24.   With respect to claim 25, Berkowitz et al. teach the system of claim 23, wherein

the at least one storage controller is further configured to:

        manage a list of controllers associated with the snapshot set, in fig. 2, Providers

215, and described in col. 4, lines 11-52;

        remove specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

        terminate the plurality of fast replications operations specified by the snapshot

set, in col. 10, lines 22-23; and

        provide information regarding a specified snapshot set, in fig. 4, step 425

(GetDeviceObject) and in col. 10, lines 32-40.

25.   With respect to claim 26, Applicant claims a computer program product that is

similar to claims 1 and 2 and is therefore rejected using similar logic.

26.   With respect to claim 28, Berkowitz et al. teach the computer program product of

claim 26, wherein the computer readable program is further configured to cause the

computer to:

        manage a list of controllers associated with the snapshot set, in fig. 2, Providers

215, and described in col. 4, lines 11-52;

        remove specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

terminate the plurality of fast replications operations specified by the snapshot

set, in col. 10, lines 22-23; and

provide information regarding a specified snapshot set, in fig. 4, step 425

(GetDeviceObject) and in col. 10, lines 32-40.

Response to Arguments

27.   Applicants arguments, filed 08/04/06 overcome the cited prior art as they are as

discussed in the interview on 6/19/06. Accordingly a new grounds of rejection has been

made under 35 U.S.C. 103 in view of Lubbers et al. which resolves the cited deficiency

of a selectable redundancy level indicator.

Conclusion

28.   A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

29.   The prior art made of record on form PTO-892 and not relied upon is considered

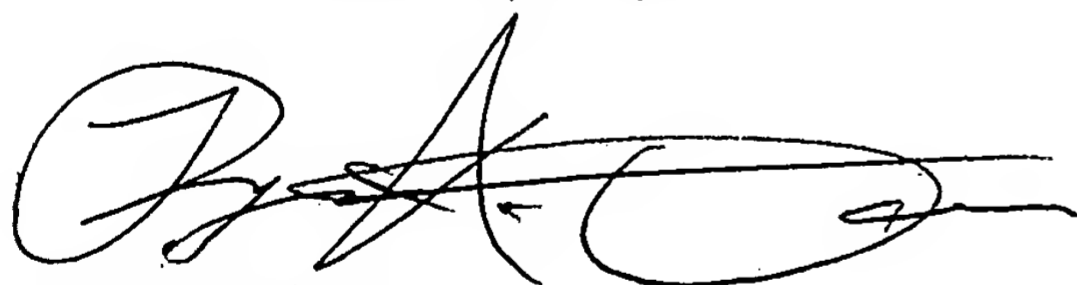pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to

consider these references fully when responding to this action. The documents cited therein teach similar backup storage systems.

30.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Dare whose telephone number is (571)272-4069. The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Dare
October 16, 2006

PIERRE BATAILLE
PRIMARY EXAMINER
10\16\06